Instructions and Assembly

17.25 kW 2x240 Volt Point-of-Use Electric Water Heater

Model # AE 115

Regulations

Any local by-laws and regulations pertaining to installation and use of electric water heating appliances must be observed. Please refer to the laws that should be attended in your country.

- Å The electrical installation must conform to current National Electrical Codes.
- Å As per the Canadian Electrical Code, C22.1-02 Section 26-744, an auxiliary terminal block must be fitted to the unit before connecting to the electrical supply (Kit Part N° "AE Canada Kit").
- Å A green terminal (or wire connection marked "G", "GR", "GROUND" or "GROUNDING") is provided within the control box. Aditional Canadian safety instructions, to reduce the risk of electrical shock, connect this terminal or connector to the grounding terminal of the electrical service of supply panel with a continuous copper wire in accordance with the Canadian Electrical Code, Part I.
- Å In Canada this product shall be protected by a Class A ground fault circuit interrupter.
- Å In the Commonwealth of Massachusetts a licensed plumber or electrician must perform the installation. (Approval number: P1-09-25).
- Å In the Commonwealth of Massachusetts a pressure relief valve shall be installed on the cold water side by a licensed plumber. (MGL 142 Section 19, Approval number P1-09-25).
- Å The unit must be wired by a qualified electrician, in accordance with the current version of the National Electrical Code US) or Canadian Electric Code (Canada).
- Å When the heater is not within sight of the electrical circuit breakers, a circuit breaker lockout or additional local means of disconnection for all non- grounded conductors must be provided that is within sight of the appliance. (Ref NEC 422.31.).
- Å The power cable size and the installation must be in accordance with the Canadian Electrical Code, C22.1- 02.

WARNING:

California Proposition 65 lists chemical substances known to the state to cause cancer, birth defects, death, serious illness or other reproductive harm. This product may contain such substances, be their origin from fuel combustion (gas, oil) or components of the product itself.

Installation

DANGER: Risk of electric shock!
B For safety reasons, disconnect the power supply to the heater before any service or testing is performed.

Important information

The installation must only be performed by a qualified person in accordance with these instructions.
Bosch Thermotechnology Corp. is not responsible for improperly installed appliances.

The heater must only be mounted in a vertical position with the water fittings located at the bottom of the heater.
Under no circumstances should the heater be mounted differently.

The appliance should be located in an area where leakage of the heater or connections will not result in damage to the area adjacent to the appliance or to lower floors of the structure.

Please follow these instructions. Failure to follow instructions may result in:
ÅDamage or injury.
ÅImproper installation/operation.
ÅLoss of warranty.

Selection of place of installation

WARNING: Risk of freezing!
Do not install the water heater in an area where there is a chance of freezing.
Damage to the water heater as a result of freezing will not be covered under warranty.

ÅIf being used in a public place, locate the heater out of easy reach to discourage vandalism.
ÅMount the unit onto a flat section of wall, well away from any potential splashes of water or spray and away from areas where direct moist or wet contact could occur.
ÅInstall the heater in a place that provides easy access for any service or maintenance.

Freeze prevention

WARNING:
ELECTRICITY IS EXTREMELY DANGEROUS. TAKE EXTRA PRECAUTIONS AND ENSURE ALL CIRCUIT BREAKERS ARE OFF BEFORE PERFORMING ANY WORK TO THE HEATER.

WARNING:
Indoor installation only, where it will NOT be exposed to freezing.

Introduction

Please note that the water heater must not be installed in a location where it may be exposed to freezing temperatures. If the heater must be left in a space that is likely to experience freezing temperatures, all water must be drained from the heater. See Use and Care pdf file. Freeze damage is not covered under the warranty.

Recommended minimum clearances for servicing

Should it be necessary to service the Powerstar electric water heater, observe the following clearances. These are not required clearances, but would facilitate any service work.

Recommended minimum clearances

	AE 115	AE125
Top	12ò	12ò
Sides	0ò	0ò
Bottom	6ò	6ò
Front	12ò	12ò

Mounting the water heater

WARNING:
The heater must only be installed in the orientation shown in Fig. 6 i.e., mounted in a vertical position with the water fittings located at the bottom of the heater. Under no circumstances should the heater be mounted differently.

Undo the retaining screws on the front cover and take the cover off the heater. Hold the back plate in position against the wall and mark the four mounting holes.
Drill the holes and secure the heater using the four wood screws supplied.

Water connections

WARNING:
Do not install a non-return check valve within 10 feet of the inlet.

WARNING:
Do not apply heat or solder to connections or pipe if they are already connected to the unit.

NOTICE: Disclaimer
In the Commonwealth of Massachusetts a pressure relief valve shall be installed on the cold water side by a licensed plumber. (MGL 142 Section 19, Approval number P1-09-25).

>The heater must be connected directly to the main cold water supply and not to pre-heated water. (The inlet water temperature must not be greater than 86 °F).
>The heater must be installed with shutoff valves on both the inlet and outlet connections.
>It is recommended that you use ¾ inch or ½ inch copper or high-pressure flex connections.
>Do not use plastic piping within 3 feet on either side of heater.
>Use Teflon tape for sealing pipe threads. Do NOT use pipe dope.
>Remember to keep the hot water pipe runs as short as possible.
After the heater has been plumbed, and before you wire it, flush it with water to remove any debris or loose particles. Heater must be full of water and air purged before power is turned on. Failure to do so may result in damage to the product that is not covered by warranty.
>After flushing and filling the heater with water, (with power off) disconnect the inlet connection and inspect the filter screen for any debris that may have been flushed through the system.

! The inlet and outlet connections are clearly marked on the heater. They each have a ¾ inch NPT connector.

Check the pressure of the main water supply. To operate correctly, the heater needs the running pressures mentioned in the chart shown.

Technical characteristics	Units	AE115	AE125
Voltage supply	V	2 X 240VAC (Canada 240VAC)	3 X 240VAC (Canada 240VAC)
Amperage	A	2 X 40A (Canada 80A)	3 X 40A (Canada 120A)
Maximum output	kW	17.25kW	26.85kW
Temperature control range		95 °F to 131 °F	95 °F to 131 °F
Minimum water pressure	psi	15psi	15psi
Maximum water pressure	psi	150psi	150psi
Minimum flow rate	gal/min	0.6 US gal / min	0.8 US gal / min
Weight (without water)	lbs	20 lbs	22 lbs
The unit will work at lower supply voltages but the following changes will apply:			
Maximum output		15kW at 220V	22.5kW at 220V
		13kW at 208V	20kW at 208V
Maximum power		84% of maximum at 220V	84% of maximum at 220V
		75% of maximum at 208V	75% of maximum at 208V

Water quality

Water quality can have an impact on appliance longevity and may not be covered under the manufacturer's warranty.
For water analysis data call your local water department, or if on a well, have well water analyzed periodically.
If water quality exceeds one or more of the values specified below, Bosch recommends consulting a local water treatment professional for water softening/conditioning options.

Description	Max. Levels
pH	pH 6.5 - 8.5
TDS (total Dissolved Solids)	mg/l or ppm 500
Total hardness	mg/l or ppm 100
Aluminum	mg/l or ppm 2.0
Chlorides	mg/l or ppm 250
Copper	mg/l or ppm 1.0
Iron	mg/l or ppm 0.3
Manganese	mg/l or ppm 0.05
Zinc	mg/l or ppm 5.0

Electrical connections

WARNING:
The unit must be wired by a qualified electrician, in accordance with the current version of the National Electrical Code US) or Canadian Electric Code (Canada).

! When the heater is not within sight of the electrical circuit breakers, a circuit breaker lockout or additional local means of disconnection for all non-grounded conductors must be provided that is within sight of the appliance. (Ref NEC 422.31.).

Starting Up

Checking for leaks and purging air

>Verify all circuit breakers supplying power to the water heater are turned off.
>Open all hot water taps supplied by the water heater and inspect all water connections for leaks.
>With all hot water taps still open, inspect each tap to ensure all air in the lines has been purged out.
With the air purged and taps still flowing, turn on all circuit breakers supplying the water heater.
>Close all hot water taps and proceed to the next section.

Adjusting the temperature dial

>The temperature adjustment is made using the dial on the bottom edge of the unit. The adjustment is between approximately 95 °F and 131 °F. Turning the dial clockwise increases the temperature setting as indicated by the marking on the unit.

Adjusting the flow

>Open fully both inlet and outlet shut-off valves at the heater, then:
Turn on fully the highest flowing hot water faucet (e.g., bathtub) served by the water heater.

For Example :

ÅFor the AE115 unit, using the outlet ball valve, ensure the flow rate does not exceed 2.3 gallons/minute.
ÅFor the AE125 unit, using the outlet ball valve, ensure the flow rate does not exceed 3.5 gallons/minute.
These figures are based on an inlet water temperature of 55 °F and a supply voltage of 240 volts. If the inlet water temperature is lower than 55 °F, or if the supply voltage is less than 240 volts, then the outlet temperature will be lower than what is shown in Fig. 11. If a higher outlet water temperature is desired, then reduce the flow rate and/or supply the unit with 240 volts.

Operation instructions

Before using the water heater

WARNING:

Do not use the unit if you think it may be frozen, as this could result in serious damage to the unit. Wait until you are sure that it has completely thawed out before you switch it on.

>Check that the power is switched on at the circuit breaker panel.
>Turn on the hot water faucet FULLY.

The hot water temperature can be changed by adjusting the temperature dial on the bottom surface of the unit. (The dial adjusts the temperature typically between 95°F and 131°F. The factory sets the temperature dial at the lowest position).

ÅIf the unit has been used recently, run the water through for a few seconds to let the temperature cool down. You may initially get a short burst of very hot water that was in the plumbing lines from previous use.
ÅIf a second outlet connected to the unit is also turned on, the hot water will be shared between the two.